

WHAT IS CLAIMED IS:

1. A device for analysing a biological liquid sample comprising a composite body of a plurality of layers of flat material defining at least one sample channel for transporting the sample liquid from an application site to a measuring site wherein the plurality of layers of flat material comprise a plurality of transport layers arranged in a stack-like manner between support layers.
2. The device of claim 1 wherein two or more sample channels are aligned on top of one another in the direction in which the transport layers are stacked.
3. The device of claim 1 wherein each sample channel is defined by a space between two sections of a transport layer.
4. The device of claim 1 wherein the transport layers comprise an electrically insulating foil material.
5. The device of claim 1 wherein the sides of the support layers that face the transport layers are coated with an electrode layer comprising an electrically conductive material.
6. The device of claim 5 wherein the electrode layers that face the transport layers comprise an electrode pair in the area of the measuring sites for the electro-chemical analysis of the sample.
7. The device of claim 5 wherein the electrode layers comprise a noble metal as a measuring electrode and a silver-silverchloride mixture as a counter reference electrode.
8. The device of claim 7 wherein the noble metal is gold, platinum or palladium.

9. The device of claim 5 wherein the electrode layers comprise an electrical contact comprising a connecting member extending beyond an adjacent transport layer.
10. The device of claim 1 wherein the support layers are displaced relative to one another in a step-like manner.
- 5 11. The device of claim 5 wherein the transport layers are separated from at least one adjacent electrode layer by an electrically insulating foil mask.
12. The device of claim 11 wherein the foil mask has perforations in the area of the sample channel for forming the measuring sites.
13. The device of claim 11 wherein the foil mask is hydrophilic.
- 10 14. The device of claim 1 wherein reagents that can be taken up by the sample liquid are provided as a dry substance in the area of the measuring sites.
15. The device of claim 1 wherein the sample channels provide capillary transport of sample liquid between the site of application and the measuring sites.
16. The device of claim 1 wherein the application site comprises inlet openings of the sample
15 channels at an edge of the composite body.
17. The device of claim 1 wherein the application site comprises a recess in the composite body in fluid communication with the sample channels.
18. The device of claim 1 further comprising laterally spaced venting channels opening to an outer side of the composite body that are in fluid communication with the sample channels.

19. The device of claim 1 comprising at least one control site for checking the filling of the sample channel by measuring electrical conductivity at the at least one control site.

20. The device of claim 1 wherein the support layers comprise transparent measuring windows at least in the area of the measuring sites for the optical examination of the sample liquid.

21. The device of claim 1 wherein at least two of the plurality of layers are glued together.

22. A method of analysing a biological liquid sample comprising determining different parameters of the sample liquid in respective sample channels of a device according to claim 1.

23. A method for detecting measuring parameters of the sample liquid and of control parameters to check the validity or calibrate the measuring parameters in respective sample channels of a device according to claim 1.

24. A device for analysing a biological liquid sample comprising a plurality of liquid sample channels for providing capillary flow of the liquid sample from an application site to a measuring site, wherein said channels are defined by plurality of alternating support layers and transport layers, wherein the transport layers each comprise two pieces of material having opposing edges which comprise side walls of the channels and the support layers comprise top and bottom walls of the channels.

25. The device of claim 24 wherein the transport layers comprise an electrically insulating foil material.

26. The device of claim 24 wherein the sides of the support layers that comprise the top and bottom walls of the channels are coated with an electrode layer comprising an electrically conductive material.

27. The device of claim 26 wherein the at least one electrode layer further comprises an
5 electrically insulating hydrophilic foil mask separating the at least one electrode layer from a transport layer.

28. The device of claim 27 wherein the foil mask has perforations in the area of the sample channel for forming the measuring sites.